

## WEATHER

Today: Variable cloudiness.  
Tomorrow: Seasonal temperatures continued.  
TEMPERATURE RANGE  
Yesterday: 43-61. Today: 49-61.  
HUMIDITY  
Yesterday: 3 p. m.: 74%. Today: 30-60%.  
Reports and Maps—Page 26

# NEW YORK

# Herald



# Tribune

Established 125 Years Ago. A European Edition Is Published Daily in Paris

VOL. CXXVI No. 43,481

230 West 47th Street, New York, N. Y. 10036  
Telephone PEnnsylvania 6-0000

FRIDAY, APRIL 22, 1966

© 1966, New York  
Herald Tribune Inc.

## Heart Assist Works!



Associated Press wirephotos

**POSITIONING** the plastic heart over the incision in his patient's chest, Dr. Michael DeBakey prepares to implant it. After operation, it projects outside body.



**CONNECTING** the dacron tubes that will carry the stricken miner's life's blood from the heart, the famed surgeon grasps for one with his right hand.

# DeBakey's Five Hour Operation

By Earl Ubell  
Science Editor

Dr. Michael DeBakey, his gloved hands deep in the patient's chest, gave the signal. The air pump throbbed and hissed. A gurgle of blood swept through a white plastic object looking like a split grapefruit. The rounded part stuck out of the ribs of a 65-year-old coal miner, a man anesthetized and hovering on the brink of death with a damaged heart.

Under air pressure, that globular object pumped 25 beats a minute, taking the man's blood from one part of his heart and shoving it along to the rest of the body and thus taking the load off his weakened heart muscle.

## PRESSURE

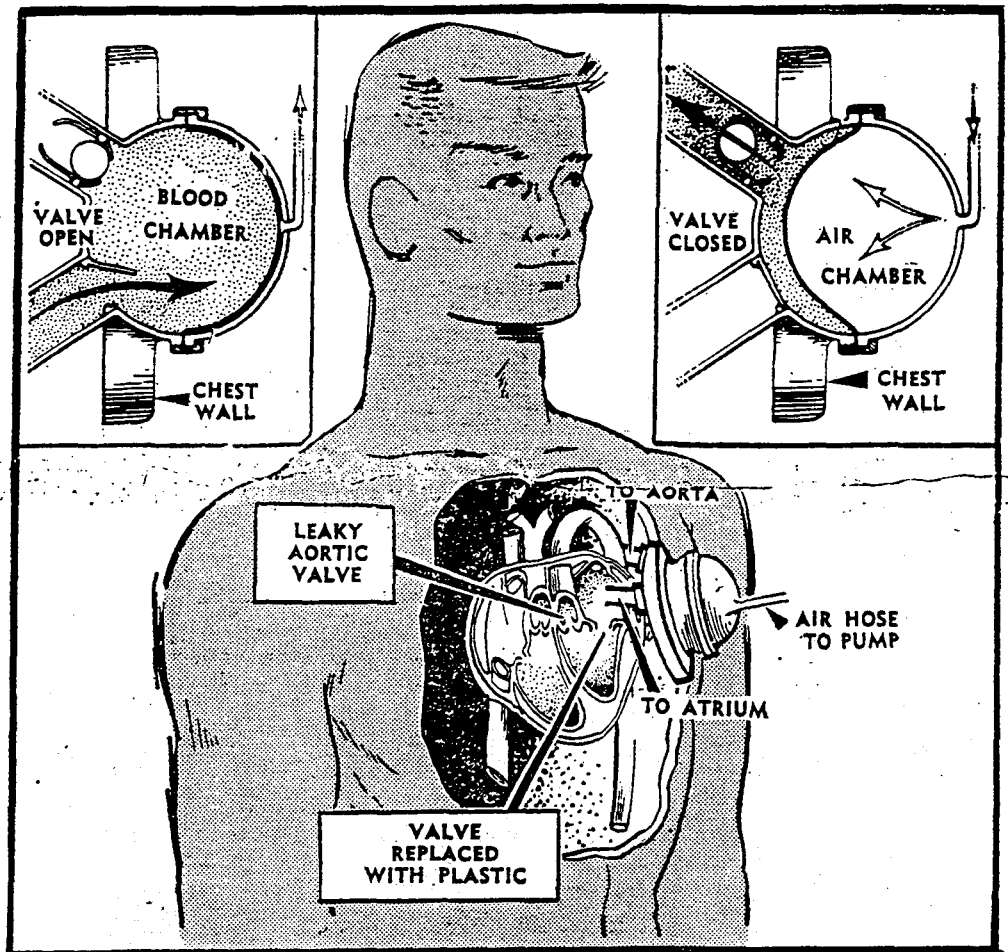
Suddenly, the man's blood pressure plummeted. Quickly, Dr. DeBakey and his eight-man team went to work: Dr. DeBakey massaging the heart, others injecting drugs, and keeping another machine, a heart-lung device, going.

The crisis over, Dr. DeBakey signaled again and the surgeons set to work closing up the patient's chest. After nearly five hours of surgery yesterday, the surgeons at the Methodist Hospital in Houston had succeeded in implanting the second modern heart assist device an artificial heart—in a living human being.

Dr. Adrian Kantrowitz, of Maimonides Hospital, Brooklyn, installed the first such device (of another design) in a human in secret on Feb. 4. While the pump worked well and eased the heart strain, the patient died of advanced liver disease after twenty-four hours.

In Brooklyn, Dr. Kantrowitz said he is planning another attempt soon. "Dr. De Bakey is a brilliant surgeon and innovator," he said. "I wish him and the patient luck." The two men have been in a

More on HEART—P 12



Herald Tribune drawing by WILLIAM KRESSE

**HOW DEVICE WORKED**—Chest cavity shown here with the heart device (called a Left Ventricular Bypass) on left side attached to the atrium and aorta at points indicated. This device was placed on the heart patient's chest after operation on his damaged valves was completed and it is expected to stay on his chest from "days to weeks," according to doctors. Inset drawings at top show how the device pumps blood in and out of the patient with the aid of an electric air pump on a table near patient.

# HEART ASSIST WORKS! De BAKEY'S 5-HOUR SURGERY

(Continued from page one)

friendly race to develop such devices.

Early today, 14 hours after the Houston patient, Marcel L. DeRudder, of Westville, Ill., was wheeled into the operating room, he was alive and Dr. DeBakey said the partial artificial heart "is doing its job." The next 48 hours are critical, doctors said.

## TEMPORARY

"The operation went off much as I had hoped and planned," Dr. De Bakey said. He said he hopes to keep Mr. DeRudder on the artificial heart for several days in several weeks until the man's own heart undergoes sufficient self-repair. Then the artificial heart will be removed.

The device, the result of nearly 4 years of work in a \$4.5 million research program, pumps the blood under air pressure. A balloon inside the plastic dome fills with air and squeezes the blood through dacron tubes. The flow of blood is checked by valves.

Dr. De Bakey, who is famous for his artery operations and as a medical confidant of President Johnson, inserted one dacron tube into the atrium, upper left chamber, of Mr. DeRudder's heart. The second tube went into the ascending aorta, the giant blood vessel leaving the lower left heart chamber, the ventricle.

As the pump works, it takes blood from the atrium and pushes it into the aorta, which feeds the rest of the body. The device bypasses the left ventricle. Therefore, the device is called a left ventricular bypass and does not substitute for the whole heart. It takes its timing from the natural heartbeat itself.

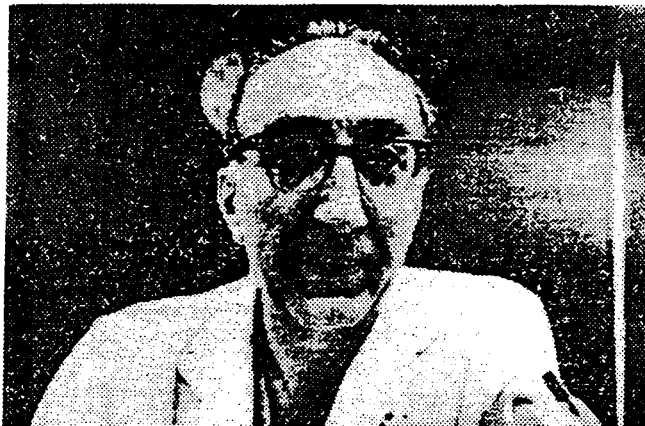
## VALVE LEAKED

Mr. DeRudder's left ventricle had been severely damaged by the consequences of rheumatic fever. The rheumatic disease had inflamed his heart valves, stiffening them with chalky deposits. The valve leading out of the left ventricle into the aorta leaked and that connecting the atrium to the ventricle was nearly closed. As a result the ventricle had to work extra hard and suffered severe damage. Since his admission

to the hospital 8 days ago, Mr. DeRudder had several heart attacks.

Dr. De Bakey's first job then was to repair the valves. To do that he placed Mr. DeRudder on a heart-lung machine, a large device that can sustain the circulation and blood oxygenation of a patient whose own heart has been stopped. Dr. De Bakey and his team, starting at 9:30 a. m. EST, opened the chest and placed a plastic valve between the heart chambers. This left the aortic valve untouched even though it was leaking.

At that point nearly 17 persons had crowded into the



Associated Press wirephoto

Dr. Michael E. DeBakey.

operating room, including Dr. C. William Hall, director of the artificial heart project at Baylor University Medical School; Dr. Dominge Liotta, one of the developers; Dr. James Howell, Dr. De Bakey's assistant, and Drs. W. W. Akers and William Obannon, two engineers from Rice Institute.

After the momentary crisis with the dramatic drop in blood pressure, Mr. DeRudder's pulse rate stabilized at between 80 and 90 beats a minute and his blood pressure read 130/80, both fairly close to normal. A team will stand by the pump all through the night.

Mr. DeRudder has several hurdles before him. First, his liver must be able to withstand the changed pattern of blood pressures in his body. Second, the machine must not be too damaging to the blood cells. And third, his body must be able to recover from the massive trauma of an open chest operation.

In 1963, Dr. De Bakey had implanted a primitive device in a patient with advanced disease, but the condition of the patient's brain, kidneys, liver and lungs made his condition hopeless.

Dr. Kantrowitz's device, developed in cooperation with his brother, Dr. Arthur Kan-



Marcel L. DeRudder

trowitz, a physicist and director of research at the Avco Corporation, has a similar air-pumping device but moves the blood without valves. The Kantrowitzes believe that the valveless gadget damages the blood less than a valved machine. The Mamoides instrument also is intended for life-long implantation.

Should either team succeed in perfecting the bypass it could be life saving for more than 400,000 persons with damaged hearts in this country. The eventual goal is a total heart replacement by a machine with removal of the natural organ.